Pushing the Envelope			
2006 Science			
Grade Level and Grade Span Expectations			
New Hampshire Science			
Grades 5-6			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	NH	SCI.5-6.S:ESS2:6:4.1	Explain the historical perspective of planetary exploration and man's achievements in space, beginning with Russia's Sputnik mission in 1957.
Types of Engines (pgs. 11-23)	NH	SCI.5-6.S:PS3:6:1.2	Explain that when a force is applied to an object, it reacts in one of three ways: the object either speeds up, slows down, or goes in a different direction.
Chemistry (pgs. 25-41)	NH	SCI.5-6.S:PS1:6:2.4	Identify energy as a property of many substances.
Physics and Math (pgs. 43-63)	NH	SCI.5-6.S:PS1:6:2.2	Identify substances by their physical and chemical properties, such as magnetism, conductivity, density, solubility, boiling and melting points.
Physics and Math (pgs. 43-63)	NH	SCI.5-6.S:PS3:6:1.2	Explain that when a force is applied to an object, it reacts in one of three ways: the object either speeds up, slows down, or goes in a different direction.
Physics and Math (pgs. 43-63)	NH	SCI.5-6.S:PS3:6:1.3	Describe the relationship between the strength of a force on an object and the resulting effect, such as the greater the force, the greater the change in motion.
Physics and Math (pgs. 43-63)	NH	SCI.5-6.S:PS3:6:2.1	Explain the how balanced and unbalanced forces are related to an object's motion.
Rocket Activity (pgs. 69-75)	NH	SCI.5-6.S:PS3:6:1.2	Explain that when a force is applied to an object, it reacts in one of three ways: the object either speeds up, slows down, or goes in a different direction.
Rocket Activity (pgs. 69-75)	NH	SCI.5-6.S:PS3:6:1.3	Describe the relationship between the strength of a force on an object and the resulting effect, such as the greater the force, the greater the change in motion.
Rocket Activity (pgs. 69-75)	NH	SCI.5-6.S:PS3:6:2.1	Explain the how balanced and unbalanced forces are related to an object's motion.

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Grades 7-8			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	NH	SCI.7-8.S:LS5:8:1.1	Explain how technology has influenced the course of history, and provide examples such as those that relate to agriculture, sanitation and medicine.

Types of Engines (pgs. 11-23)	NH	SCI.7-8.S:PS3:8:1.3	Use data to determine or predict the overall (net) effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.
Types of Engines (pgs. 11-23)	NH	SCI.7-8.S:PS3:8:2.2	Explain how the motion of an object can be described by its position, direction of motion, and speed; and illustrate how that motion can be measured and represented graphically.
Chemistry (pgs. 25-41)	NH	SCI.7-8.S:PS1:8:2.6	Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter.
Chemistry (pgs. 25-41)	NH	SCI.7-8.S:SPS2:8:4.3	Realize that symbolic equations can be used to summarize how the quantity of something changes over time or in response to other changes.
Physics and Math (pgs. 43-63)	NH	SCI.7-8.S:PS3:8:1.3	Use data to determine or predict the overall (net) effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.
Rocket Activity (pgs. 69-75)	NH	SCI.7-8.S:PS2:8:3.5	Recognize that most chemical and nuclear reactions involve a transfer of energy.
Rocket Activity (pgs. 69-75)	NH	SCI.7-8.S:PS3:8:1.3	Use data to determine or predict the overall (net) effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.
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Grades 9-11			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	NH	SCI.9-11.S:PS3:11:1.8	Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, and acceleration to predict and explain the motion of objects.
Physics and Math (pgs. 43-63)	NH	SCI.9-11.S:PS3:11:1.8	Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, and acceleration to predict and explain the motion of objects.
Physics and Math (pgs. 43-63)	NH	SCI.9-11.S:PS3:11:2.1	Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.
Rocket Activity (pgs. 69-75)	NH	SCI.9-11.S:PS3:11:1.8	Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, and acceleration to predict and explain the motion of objects.
Rocket Activity (pgs. 69-75)	NH	SCI.9-11.S:PS3:11:2.1	Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.

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Grades 11-12			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	NH	SCI.11-12.S:PS2:12:3.2	Understand that activation energy is required to make a chemical reaction proceed, whether or not it is exothermic or endothermic.